

Economics of Columbia River Initiative

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Interim Progress Report

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Introduction

The purpose of this study is to review the economics of water use from the Columbia River in the context of Washington State's Columbia River Initiative (CRI). The CRI has been proposed as a way to address the legal, scientific, and political issues related to water use from the mainstem of the Columbia River in Washington state. The analysis described herein is one of several kinds of information that will be used to inform the Department of Ecology's rule-making related to the Columbia River. In addition to this review, the state has contracted with the National Academy of Sciences to consider the relationship between water use and the health of salmon populations.

The CRI economics study team began in July of 2003 by reviewing existing information and published analysis available regarding the proposed Columbia River Initiative (CRI), with a focus on the five "management scenarios". A broad description of the economics approach to assessing impact of the CRI was developed among Research Team members and with the assistance of DOE staff during a meeting at DOE headquarters in Olympia and through numerous phone conversations and e-mails throughout July and early August. We met with the Economics Advisory Committee (EAC) on August 11 and received numerous pieces of information, views, and helpful suggestions for the study. During the remainder of August and through September and early October the Team pursued a series of analyses conforming with the attached outline for the final report. This Progress Report is intended to document the degree to

which the Team has completed parts of the research, to indicate what remains to be completed, and to indicate the expected timing of the remaining portions of the CRI economics research effort.

Progress to Date

The two introductory chapters (see attached outline) for the CRI Economics final report have been largely completed, reviewed by Gerry O’Keefe, and revised. A significant part was the documentation of existing surface and groundwater rights in Washington, and the outstanding applications for such rights, which draw from or are within 1 mile of the Columbia river. Further, we developed a method of forecasting the locations and types of water rights likely to be issues under the CRI management scenarios. Basically, this forecast assumes that the pattern (location and use) of current applications will be reflected in the future water rights issues under the proposed CRI rules. The focus of this is the proposed 1 million acre-foot new rights allocation over 20 years. We are still determining how the timing and magnitude rights allocations, and conversions from interruptible to non-interruptible, would be affected by the requirement to meet Best Management Practices for water use efficiency.

We have made substantial progress in the analysis of economic values (net incomes or benefits) associated with new water rights going to the irrigated agriculture sector (Chapter 3), and the municipal and industrial water supply sectors (Chapter 4). The two chapters have been drafted and are under revision. Again, the majority of effort has focused on the effects of an additional 1 MAF of water being diverted under Management Scenario 1. Specifics concerning the effects of BMPs and fees paid per acre-foot of new rights and converted right are under current investigation.

The costs, or potential negative effects, of new water diversions on Hydropower Generation (Chapter 5), Flood Control (Chapter 6), and River Navigation (Chapter 7) have been largely completed for Management Scenario 1. These chapters are currently being augmented and revised as new information (e.g. updated forecasts of Mid-Columbia electricity prices) are obtained. Further work will need to be completed regarding the effects (if any) of provisions under Management Scenarios 2 – 4.

As explained during our meeting with the EAC on August 11, effects of the CRI management scenarios on commercial and recreational fishing will occur to the extent that the new and converted water rights affect the fish populations. Lacking a consensus regarding the effects of small magnitude mainstem flow changes on salmon and steelhead populations, we are focusing our efforts on documenting the economic values associated with marginal changes in the fisheries. We are contemplating the possibility of using alternative predictions of effects on populations, but as economists we will not act as arbiters of opposing view on these effects. If those with rigorous forecasts of flow and temperature effects on the fish could provide a consensus estimate, or if they could agree on two or three alternative estimates, we would provide economic value estimates associated with those fish effects.

The regional and secondary effects (Chapter 9) are currently being developed. This part had to follow the earlier chapters in time, simply because the secondary impacts analysis depends upon the direct effects provided by the earlier chapters.

Passive use values associated with the CRI scenarios (Chapter 10) have been summarized from the literature in a draft chapter. The focus is on salmon and steelhead since the flow changes under the CRI management scenarios are apparently too small to significantly affect reservoir elevations, views, or wildlife refuges (the other possible sources of change in non-use values).

We have collected a large number of published papers and reports on western water markets. We summarize the various forms those markets could take, and the conditions under which they are likely to encourage economically beneficial re-allocations among water users in the Columbia basin.

Schedule for Completion

We are on schedule to finish a full draft report on November 10, 2003. That report will be distributed to the EAC for review and comment. We will hold a meeting to discuss the draft report a week or so after the draft is distributed. Revisions to the report will be completed and a final report delivered by December 15, 2003.

*Attachment 1***OUTLINE: Economics of Columbia River Initiative**

1. Introduction
 - A. CRI Rationale and Timeline
 - B. Water Rights on the Columbia River in Washington: Magnitude and Pending Applications
2. Columbia River Initiative “Scenarios”
 - A. Risk to Salmon
 - B. Conversion of Interruptible Rights
 - C. Fees
 - D. Mitigation Measures
 - E. Potential for New Water Rights
3. Economic Value of New Irrigated Agriculture
 - A. Method of Analysis for Valuing Irrigated Agriculture
 - B. Crop Mix by County
 - C. Irrigation Technology Use
 - D. Crop Water Use
 - E. Crop Value
4. Economic Value of New Municipal and Industrial Water Supplies
5. Economic Effects on Hydropower Generation
 - A. Description of Power Loss Calculation Method
 - B. Example of Columbia Basin Project
6. Effects on Flood Control
7. Effects on River Navigation
8. Economic Effects on Commercial and Recreational Fishing
9. Regional and Secondary Impacts of CRI Scenarios
10. Passive Use Values Associated with CRI Scenarios
11. Water Markets: Promise and Prospects
 - A. Issues in Water Marketing
 - B. Water Marketing in the Northwest
 - C. Prospects for Water Markets in the Columbia River
12. Discussion and Conclusion
13. References